

IN THE CLAIMS:

- 1 1. (Currently Amended) A method for transmitting data in the form of packets, the
2 method comprising:
3 generating packets that include a header, a data field, and at least one pseudo-
4 header;
5 formatting the packet header in accordance with the specifications of a first proto-
6 col;
7 formatting a pseudo-header in accordance with one or more additional constraints,
8 such that the additional constraints substantially satisfy at least one additional procedure
9 in accordance with [[the first protocol or]] a different protocol;
10 transmitting a data packet including a segment of data, a header and a pseudo-
11 header to a receiving device;
12 receiving at least one reply packet from the receiving device, formatted in accor-
13 dance with the first protocol; and
14 determining the validity of the received packet based on at least one additional
15 processing step after reception of the packet in accordance with the first protocol.
- 1 2. (Previously Presented) The method of claim 1, wherein the data packet transmit-
2 ted is formatted in accordance with the specifications of User Datagram Protocol (UDP).
- 3 3. (Previously Presented) The method of claim 1, wherein the data packet transmit-
4 ted has a pseudo-header within the data field.
- 1 4. (Previously Presented) The method of claim 3, wherein the fields of the pseudo-
2 header are generated according to additional constraints.
- 1 5. (Previously Presented) The method of claim 1, wherein the transmitting includes:

2 transmitting the data packet using Transmission Control Protocol (TCP).

1 6. (Previously Presented) The method of claim 1, wherein the transmitting includes:
2 transmitting the data packet using User Datagram Protocol (UDP).

1 7. (Previously Presented) The method of claim 4, including the further step of:
2 generating at least one field of the pseudo-header in accordance with additional
3 constraints.

1 8. (Currently Amended) A system for transmitting data in a network, the data in-
2 cluding at least one segment transmitted in at least one packet, the system comprising:
3 a memory configured to store instructions; and
4 a processor configured to execute instructions to:
5 generate at least one field of at least one pseudo-header and to insert it as extra
6 octets in a place after [[the]] a protocol header and before the protocol data in a data field,
7 which implements constraints on the formatting of [[the]] at least one field of the pseudo-
8 header in such a manner to substantially satisfy requirements for procedures in accor-
9 dance with a protocol.

1 9. (Previously Presented) The system of claim 8, wherein at least one reply to the
2 transmitted packet is received and processed.

1 10. (Previously Presented) The system of claim 9, wherein the processor performs at
2 least one checking step on the pseudo-header contained within the packet data fields upon
3 reception of the reply to the transmitted packet.

1 11. (Currently Amended) A computer-readable medium having stored thereon a plu-
2 rality of sequences of instructions, said sequences of instructions including instructions
3 which, when executed by at least one processor, cause said processor to perform the steps
4 of:

5 generating packets having at least one field of a pseudo-header and to insert it as
6 extra octets in a place after [[the]] a protocol header and before the protocol data in a data
7 field, which implements constraints on the formatting of at least one field of the pseudo-
8 header in such a manner [that desired] to substantially satisfy requirements for procedures
9 in accordance with a [[first protocol or a different]] protocol, [[are implemented without
10 requiring additional memory resources to implement such procedures.]]

1 12. (Previously Presented) The computer-readable medium of claim 11, wherein at
2 least one reply to the transmitted packet is received and processed.

1 13. (Previously Presented) The computer-readable medium of claim 12, wherein the
2 reply received in response to a transmitted packet is verified by performing at least one
3 computation using the pseudo-header field contained within the protocol data field.

1 14. (Previously Presented) The computer-readable medium of claim 11, wherein the
2 transmitting includes:
3 transmitting packets in accordance with the Transmission Control Protocol (TCP).

1 15. (Previously Presented) The computer-readable medium of claim 11, wherein the
2 transmitting includes:
3 transmitting packets in accordance with the User Datagram Protocol (UDP).

1 16. (Previously Presented) The computer-readable medium of claim 12, wherein the
2 reply is received in accordance with the Transmission Control Protocol (TCP).

1 17. (Previously Presented) The computer-readable medium of claim 12, wherein the
2 reply is received in accordance with the User Datagram Protocol (UDP).

1 18. (Previously Presented) A method of analyzing the header of one protocol in the
2 context of the header of at least one other protocol, the method comprising:

3 identifying the prefix portion of the header of the one protocol that is common
4 with the corresponding prefix portion of the at least one other protocol; and
5 identifying a next portion of the header of the one protocol that differs from the
6 corresponding next portion of the header of the at least one other protocol; and
7 computing at least one constraint that is to be applied to the processes which can
8 generate packets in accordance with the at least one other protocol without requiring ad-
9 ditional memory storage resources.

1 19. (Previously Presented) The method of claim 18, wherein the computing of the at
2 least one constraint is done so that the packet generated in accordance with the at least
3 one other protocol with the further addition of the at least one constraint will satisfy the
4 requirements of the one protocol.

1 20. (Previously Presented) The method of claim 19, wherein the computing of the at
2 least one constraint is done so that the packet generated in accordance with the at least
3 one other protocol with the further addition of the at least one constraint will substantially
4 satisfy the requirements of the one protocol.

1 21. (Previously Presented) A method of transmitting data as data packets, the method
2 comprising:
3 receiving packets formatted in accordance with one protocol; and
4 applying them to the processing procedures designed in accordance with a differ-
5 ent protocol; and
6 generating replies to be transmitted in response to the received packets; and
7 transmitting the replies into the network.

1 22. (Previously Presented) The method of claim 21, wherein the one protocol is
2 Transmission Control Protocol (TCP).

1 23. (Previously Presented) The method of claim 22, wherein the one other protocol is
2 User Datagram Protocol (UDP).

1 24. (Previously Presented) The method of claim 21, wherein the one protocol is User
2 Datagram Protocol (UDP).

1 25. (Previously Presented) The method of claim 24, wherein the other one protocol is
2 Transmission Control Protocol (TCP).

1 26. (Previously Presented) A device for implementing the method according to claim
2 20, comprising:

3 logic configured to receive packets in accordance with at least one protocol;
4 logic configured to generate a reply and to transmit the reply into the network in
5 accordance with at least one protocol; and
6 logic configured to insert at least one pseudo-header field in the transmitted
7 packet in accordance with at least one additional constraint.

1 27. (Previously Presented) A method for transmitting data as defined in claim 1 in-
2 cluding the further step of
3 using said constraints in said pseudo-header to implement at least one procedure
4 in accordance with a desired protocol without having to store a substantial portion of the
5 packet containing that psuedo-header in a memory storage device.

1 28. (Previously Presented) The method for transmitting data as defined in claim 1
2 including the further step of
3 formatting said pseudo-header within the data field of the packet in accordance
4 with one or more additional constraints without requiring additional logic circuitry to per-
5 form the steps of the procedures defined by the additional constraints.

- 1 29. (Previously Presented) The method as defined in claim 1 including the further
2 step of
3 formatting said pseudo-header in such a manner that the packet content includes a
4 constraint that substantially satisfies one or more requirements of a different protocol,
5 without requiring additional memory resources.
- 1 30. (Previously Presented) The system as defined in claim 8 further comprising
2 an application layer for implementing an application layer protocol, and
3 said application layer and protocol being modified or altered to allow the application
4 layer or protocol to ignore a specified number of octets of the data field, which are re-
5 served for use by at least one pseudo-header.
- 1 31. (New) The method as defined in claim 1 wherein said formatting step includes
2 said additional constraints also satisfying at least one additional procedure in accordance
3 with the first protocol.